

DATA SHEET

SMP1352 Series: Large Signal Switching, Plastic Packaged PIN Diodes

Features

- Designed for large signal switches in base station and handset applications
- Available lead (Pb)-free and RoHS-compliant MSL-1 @ 260 °C per JEDEC J-STD-020
- Available in tape and reel packaging






Description

The SMP1352 series of plastic packaged, surface mountable, low-capacitance (0.3 pF) silicon PIN diodes is designed for large signal switch applications from 10 MHz to beyond 2 GHz. These diodes have a reverse voltage rating of 200 V and are designed for use in low-distortion switches that are required to hold off large RF voltages. The nominal 50 μm I region width, combined with the typical 1.5 μs carrier lifetime, results in a PIN diode with low forward resistance and low distortion characteristics.

NEW Skyworks offers lead (Pb)-free, RoHS (Restriction of Hazardous Substances)-compliant packaging.



	
Single	Single
SOD-323	SC-79
SMP1352-011 Marking: PR	◆ SMP1352-079
SMP1352-011LF Marking: RR	◆ SMP1352-079LF
$L_S = 1.5 \text{ nH}$	$L_S = 0.7 \text{ nH}$

 LF denotes lead (Pb)-free, RoHS-compliant packaging option as an alternative to our standard tin/lead (Sn/Pb) packaging.

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Absolute Maximum Ratings

Characteristic	Value
Reverse voltage (V_R)	200 V
Power dissipation @ 25°C lead temperature (P_D)	250 mW
Storage temperature (T_{ST})	-65 °C to +150 °C
Operating temperature (T_{OP})	-65 °C to +150 °C
ESD human body model	Class 1C

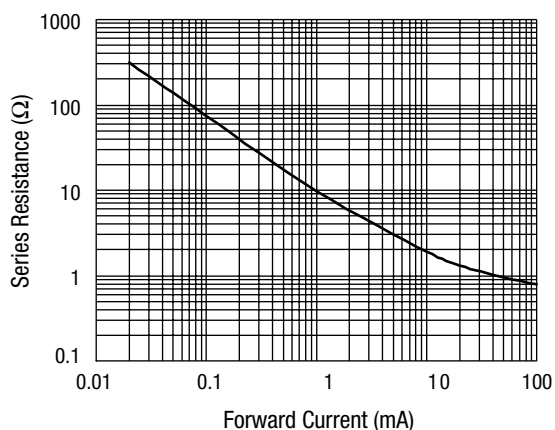
Performance is guaranteed only under the conditions listed in the specifications table and is not guaranteed under the full range(s) described by the Absolute Maximum specifications. Exceeding any of the absolute maximum/minimum specifications may result in permanent damage to the device and will void the warranty.

CAUTION: Although this device is designed to be as robust as possible, ESD (Electrostatic Discharge) can damage this device. This device must be protected at all times from ESD. Static charges may easily produce potentials of several kilovolts on the human body or equipment, which can discharge without detection. Industry-standard ESD precautions must be employed at all times.

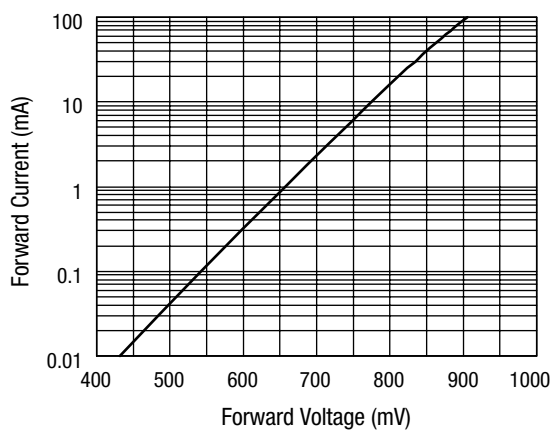
Electrical Specifications at 25 °C

Parameter	Condition	Typ.	Max.	Unit
Reverse current (I_R)	$V_R = 200\text{ V}$		10	μA
Capacitance (C_T)	$F = 1\text{ MHz}, V = 20\text{ V}$		0.35	pF
Resistance (R_S)	$F = 100\text{ MHz}, I = 1\text{ mA}$	11	15	Ω
Resistance (R_S)	$F = 100\text{ MHz}, I = 10\text{ mA}$	2	2.8	Ω
Resistance (R_S)	$F = 100\text{ MHz}, I = 100\text{ mA}$	1	1.35	Ω
Forward voltage (V_F)	$I_F = 10\text{ mA}$	0.8		V
Carrier lifetime (τ_I)	$I_F = 10\text{ mA}$	1		μs
I region width		50		μm

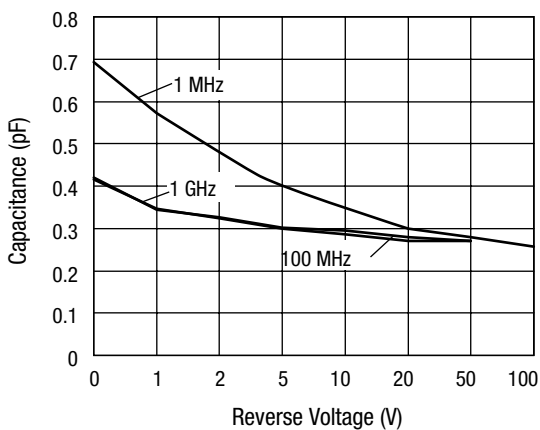
Typical Performance Data



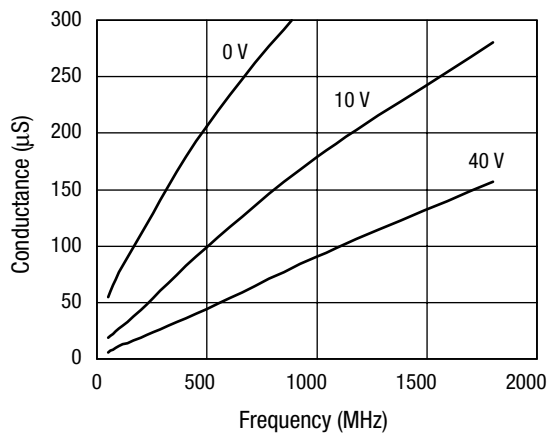
Series Resistance vs. Current @ 100 MHz



DC Characteristic



Capacitance vs. Reverse Voltage



Conductance vs. Frequency and Reverse Voltage

Resistance vs. Temperature @ 100 MHz

I _F (mA)	R -55 °C (Ω)	R -15 °C (Ω)	R 25 °C (Ω)	R 65 °C (Ω)	R 100 °C (Ω)
0.02	260	276	302	263	240
0.1	60.9	64	70.6	71	70.1
0.3	22.4	23.6	26	27.8	28.2
1	7.9	8.5	9.2	10.3	10.7
10	1.5	1.7	1.9	2.2	2.3
20	1.1	1.2	1.3	1.6	1.7
100	0.55	0.69	0.78	0.98	1.03

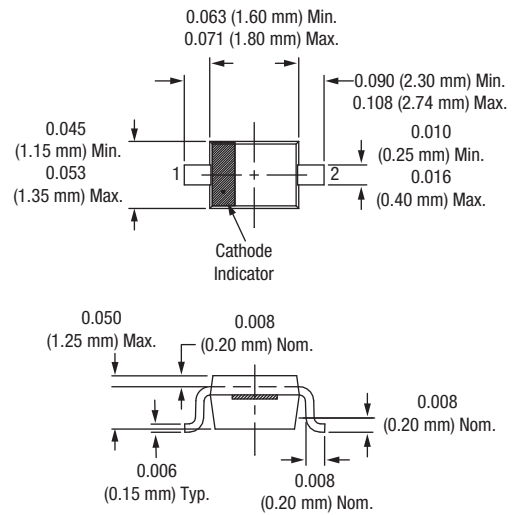
Recommended Solder Reflow Profiles

Refer to the [“Recommended Solder Reflow Profile”](#) Application Note.

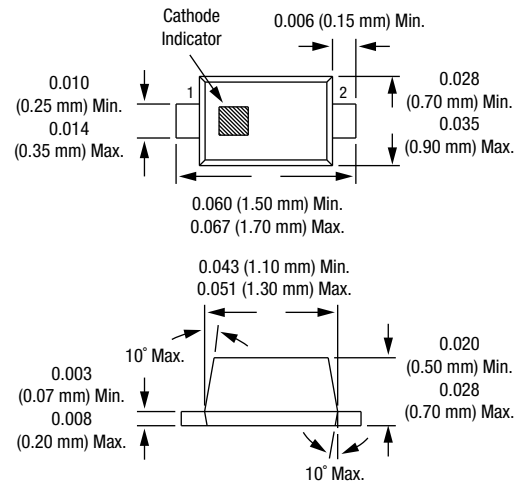
Tape and Reel Information

Refer to the [“Discrete Devices and IC Switch/Attenuators Tape and Reel Package Orientation”](#) Application Note.

SOD-323



SC-79



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